Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.

1.
Ag84L

WOOD TICKS

how to control them in infested places

Diseases They Spread

Insecticides

Repellents

Ticks in Homes

THE AMERICAN DOG TICK: ADULT FEMALE. GREATLY ENLARGED.

LEAFLET No. 387

U. S. DEPARTMENT OF AGRICULTURE

WOOD TICKS how to control them in infested places

The term "wood ticks" is applied to several species of ticks so similar in appearance and habits that few persons can tell one from another.

Wood ticks feed on the blood of animals, and may bite people. Their bites are painful, and some of them carry diseases. They cause economic losses among farm animals and are serious pests of dogs.

The ticks infest wooded or brushy areas and grassy fields. They are often found in recreational areas and lawns, and are sometimes found in homes in small numbers. When ticks are found in relatively large numbers in homes, they are not wood ticks; see section "Ticks in Homes" in this publication. Wood ticks are an annoyance and a health hazard to farmers, woodsmen, and military personnel; to campers, picnickers, vacationers, hunters, and hikers; and to persons who live in rural and suburban areas.

You can control wood ticks by applying insecticides. You can protect yourself by applying a repellent to your clothing before entering an infested area.

Species . . . Nature of Injury

The more common species of wood ticks are the Rocky Mountain wood tick,[1] the American dog tick,[2] the lone star tick,[3] and the black-legged tick.[4]

The Rocky Mountain wood tick and the American dog tick transmit Rocky Mountain spotted fever and tularemia (rabbit fever), which are diseases of man, and anaplasmosis, a disease of cattle.

Adults of these ticks can also cause a form of paralysis in animals and people in rare instances when they attach over the spinal cord or at the base of the skull.

The lone star tick can transmit Rocky Mountain spotted fever, tularemia, and Bullis fever. The black-legged tick transmits piroplasmosis, a disease of dogs, and anaplasmosis.

Life Stages . . . Appearance

Wood ticks go through four stages of development—egg, larva, nymph, and adult.

The eggs are usually laid in masses in thick clumps of grass. Each female lays only one mass, which contains 3,000 to 6,000 eggs.

The eggs hatch into larvae, which attach themselves to host animals. In a few days the larvae fill themselves with blood, drop to the ground, and shed their skins, or molt. The larvae have become nymphs.

The nymphs attach themselves to host animals, become engorged with blood in a few days, and drop to the ground and molt. The nymphs have become adults.

Adults of both sexes attach themselves to host animals. They mate on the hosts. They become engorged with blood in 5 to 13 days. After engorgement, the females drop to the ground, lay their eggs, and die.

The larvae are about $\frac{1}{40}$ inch long when unfed. Engorged larvae and unfed nymphs are about $\frac{1}{16}$ inch long. Engorged nymphs and unfed adults are about $\frac{3}{16}$ inch long, and engorged females may be $\frac{1}{2}$ inch long. The males do not enlarge as they feed.

The adults of the Rocky Mountain wood tick and the American dog tick are indistinguishable. The hard shields on their backs are liberally spotted or streaked with white. The adult of the lone star tick is marked on the back with a small white dot or two small crescents. The adult of the black-legged tick has black legs, and has a shiny black shield on the back.

Where They Occur . . . Habits

The Rocky Mountain wood tick occurs in most of the Western States. It is most common in the Rocky Mountain region.

Only the adult ticks bite people. The larvae and nymphs feed on small animals, especially rodents.

The life cycle of this tick usually extends over a period of 2 years. All stages of the tick are abundant and active during the summer. Nymphs and adults survive over winter.

The American dog tick occurs throughout the United States, except in the Rocky Mountain region. It is most abundant in coastal areas and in the Mississippi Valley.

The larvae and nymphs feed largely on rodents. The adults feed on dogs, cattle, and other large animals. They will bite people.

In the northern part of the United States the adult ticks are abundant in the spring and early summer; few are encountered after August 1. In the southern part of the United States their activity is less sharply influenced by change of season.

The lone star tick is most common in the coastal States from North Carolina to Texas, and in the Mississippi Valley.

The ticks are usually well distributed over whatever area they infest, but they occur in the greatest numbers in habitual resting places of animals or in layers of leaves or duff in wooded areas.

The larvae and nymphs feed on most mammals and ground-nesting birds. The adults feed on deer, cattle, horses, hogs, and many small animals. Larvae, nymphs, and adults will bite people.

The larvae (often called seed ticks) crawl up vegetation near the spot where the eggs hatched. They collect in clusters. The number of larvae in a cluster ranges from fewer than a hundred to more than a thousand. All or most of the larvae in a cluster cling to a person or animal that brushes against them. Many of the larvae

[1] *Dermacentor andersoni.* [2] *D. variabilis.* [3] *Amblyomma americanum.* [4] *Ixodes ricinus scapularis.*

will bite, and are easy to locate and remove. Finding and removing those that do not bite is a tedious task. Bites of larvae are irritating for as long as 10 days.

Nymphs and adults usually congregate in ground litter, or on vegetation. They cling to passing animals or crawl over the ground to attack hosts that lie or stand nearby.

Nymphs and adults are most abundant from March to July; some may be encountered until September. Larvae are most abundant from July to September.

The black-legged tick is found along the east coast.

The larvae and nymphs feed on various rodents and reptiles. The adults feed on deer, cattle, sheep, hogs, dogs, and other large animals. They will bite people. Long mouth parts make their bites especially painful.

The adults are most abundant in the fall and early winter.

American dog ticks and black-legged ticks usually congregate along game trails, paths, and roadways, where they wait on vegetation and attach themselves to animals and people that pass by.

Larvae and nymphs of wood ticks may live for a year without feeding, and the adults for 2 years.

Control in Outdoor Areas

Control wood ticks in infested outdoor areas by using DDT, toxaphene, chlordane, or dieldrin. DDT is the insecticide most widely used for this purpose.

Lindane gives good initial control, but it usually remains effective for a shorter time than DDT, toxaphene, chlordane, or dieldrin.

The selected insecticide can be applied as a spray or as a dust. Sprays are sometimes more difficult to apply than dusts, especially if the area to be treated is large and the growth of brush is heavy.

RATE OF APPLICATION

Dusts

Dusts are sold in different strengths and are ready to use when purchased.

To treat lawns or similar areas where the vegetation and ground cover are relatively thin, apply a 10-percent DDT dust, or a 5- or 10-percent toxaphene, chlordane, or dieldrin dust; apply it at the rate of 20 to 25 pounds per acre. To treat wooded or brushy areas, apply 40 pounds of one of these dusts per acre.

Apply lindane at the rate of 0.2 to 0.4 pound per acre. The amount of a commercial product that you must apply in order to get the proper dosage depends on the percentage of active ingredient in the product. For example, you would apply 1-percent lindane dust at the rate of 20 to 40 pounds per acre.

Sprays

Apply DDT, toxaphene, chlordane, or dieldrin in sprays at the rate of 1 to 2 pounds of the actual insecticide per acre. Apply lindane at the rate of 0.1 to 0.2 pound per acre.

PREPARING A SPRAY

To prepare a spray, mix an emulsifiable concentrate or a wettable powder with water. (Do not use oil solutions; they will burn the vegetation.) The amount of concentrate or powder that you must use to get the proper dosage depends on the percentage of active ingredient in the product you buy. The table below shows the percentages most commonly found in retail products and the amount of each product that is needed in a spray mixture prepared for treating 1 acre.

Insecticides, and forms in which they may be purchased	Amount of purchased product to mix with 25 gallons of water
DDT, TOXAPHENE, CHLORDANE, AND DIELDRIN	
Emulsifiable concentrate:	
40-percent	3 quarts.
50-percent	2 quarts.
65-percent	1½ quarts.
Wettable powder:	
25-percent	8 pounds.
50-percent	4 pounds.
LINDANE	
Emulsifiable concentrate:	
20-percent	1¼ pints.
25-percent	1 pint.
Wettable powder:	
25-percent	1 pound.

The amount of water needed depends on the per-acre output of your spraying equipment and the kind of vegetation on the area to be sprayed. It takes 15 to 25 gallons of spray per acre to spray lawns or similar areas, and 50 gallons or more per acre for thorough coverage of wooded or brushy areas.

APPLYING THE INSECTICIDE

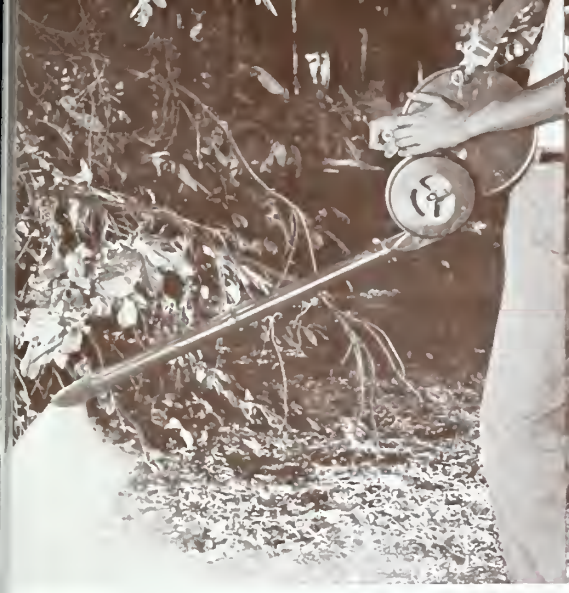
Before applying the insecticide, make a quick survey by dragging a white flannel cloth over the ground and vegetation. Use a square yard of white flannel cloth tacked along the front edge to a stick. Examine it for wood ticks frequently. This will show whether you need to treat the entire area or only those parts of the area where ticks may be concentrated.

Apply the insecticide as soon as ticks become annoying. Apply it to the ground, to surface litter, and to vegetation. Treat the vegetation to a height of about 2 feet.

One application may be effective for an entire season; but if ticks again become annoying, it may be necessary to repeat the treatment.

If you spray, wet the ground, litter, and vegetation thoroughly. Shake the container occasionally to keep the insecticide well mixed with the water. If you dust, be sure to get the dust well distributed.

Do not apply insecticides for tick control to crops or grazing areas.



Dusting woodland litter to kill lone star ticks. The applicator is a rotary hand duster.

Spraying vegetation to kill American dog ticks. The applicator is a compressed-air sprayer.

To kill American dog ticks and black-legged ticks, spray or dust a strip 20 to 30 feet wide on each side of roads and paths. To kill other species of ticks, treat the entire infested area. (If a survey shows that lone star ticks are concentrated in thickets, treat only those places.)

On lawns and grounds up to an acre or two, or along roads and paths, apply the insecticide with a 2- or 3-gallon hand-pressure sprayer or a plunger- or rotary-type hand duster. If the area is large or the roads or paths extend over long distances, use a power sprayer or power duster.

Aircraft can be used to treat some large areas of general infestation. Large area treatments may prove hazardous to wildlife. Do not treat unless necessary to protect humans from ticks and the diseases they carry.

Using Repellents

The mosquito repellents deet (diethyltoluamide), dimethyl phthalate, and ethylhexanediol, applied as clothing impregnants, will provide some protection against wood ticks. If you wear socks, shirt, and trousers impregnated with one of these materials, you can expect about 75-percent protection from ticks.

Better protection can be obtained with another repellent, Indalone, but it is not widely available.

Use the selected repellent in a solution or an emulsion. A 5-percent solution or emulsion will provide an effective deposit on ordinary cotton khaki, denim, or light wool clothing. About 3 pints of solution or emulsion will impregnate an outfit of socks, shirt, and trousers.

You can make a 5-percent solution by mixing a repellent with acetone or a dry-cleaning solvent at the rate of 1 ounce of repellent to 1 pint of acetone or solvent.

You can make a 5-percent emulsion by mixing 1 ounce of repellent with 1 pint of water and 2 ounces of an emulsifier such as Tween 80 or Triton X–100 or 1 ounce of laundry soap.

Dissolve the emulsifier or soap in the water and add the repellent slowly while stirring the mixture vigorously. (Synthetic household detergents are not suitable for making emulsions but most laundry soaps are satisfactory.)

Dip the clothing into the repellent mixture or pour the mixture over the clothing. Then wring out the clothing by hand. Let it dry thoroughly before wearing it. The repellent will remain effective for about a week unless the clothing gets wet. Wash and re-treat clothing at weekly intervals.

Do not treat rayon and nylon fabrics with repellent solutions or emulsions. Nylon is nonabsorbent and will not retain enough repellent to be effective. Some types of rayon may be damaged by the repellents.

Ticks in Homes

Although wood ticks seldom occur in homes in numbers that make control measures necessary, other ticks, chiefly the brown dog tick (*Rhipicephalus sanguineus*), will infest homes and other buildings if dogs are present.

The brown dog tick passes through the same stages as the wood ticks. In homes, the eggs and engorged ticks may be found in cracks, behind curtains, and under furniture or rugs. The tick will survive the winter out of doors in the most southerly States, but in most of the country it survives only in heated buildings. It seldom bites people.

Soft ticks belonging to the genus *Ornithodoros* sometimes occur in homes in the Western and Southwestern States. They are extremely painful biters and several species transmit the germs of relapsing fever.

CONTROL

Apply a residual spray to control brown dog ticks and soft ticks in the home. Dusts can be used, but they are harder to apply and are unsightly in exposed places.

Household spray formulations come in different strengths and are ready to use when purchased.

Use a spray that contains either 5 percent of DDT, 2 percent of malathion or 2 percent of chlordane, 1 percent of lindane, or a combination of DDT and chlordane or activated pyrethrum.

Apply with a hand sprayer or household sprayer. Apply the spray thoroughly to baseboards, around door and window mouldings, behind pictures, under furniture, around the edges of rugs, on curtains and draperies, and in all cracks.

For several weeks the residue left by the spray kills ticks that come in contact with it. One application is usually sufficient, but if ticks are numerous after the second or third week, repeat the treatment.

Precautions

Handle insecticides with care. Most of them are likely to poison people and animals if they are handled carelessly.

Store insecticides where children, pets, and livestock cannot reach them. Label containers plainly.

Avoid inhaling sprays and dusts, and do not expose the skin to them more than is necessary. If you spill the material on skin or clothing, or get wet with the spray, change clothing and bathe immediately.

Do not apply these insecticides to crops, grazing areas, or livestock.

To avoid killing fish when applying insecticides near streams, lakes, or ponds, do not let excessive amounts get in the water. Be especially careful when using dieldrin or toxaphene near fish-bearing waters.

Do not contaminate water supplies, such as wells and cisterns.

Ticks on Animals

For information about control of ticks on animals, write to the U. S. Department of Agriculture, Washington, D.C., 20250.

●

Prepared by the Entomology Research Division,
Agricultural Research Service
Washington, D. C. Issued June 1955
Slightly revised October 1963

●

☆ U.S. GOVERNMENT PRINTING OFFICE : 1963—O-697-548

For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402 - Price 5 cents